

### **REMARKS**

Favorable reconsideration and allowance of the present application are respectfully requested in view of the amendments and remarks made herein.

### **CLAIM STATUS**

Claims 2 and 4-24 are pending in the present application. Claims 1 and 3 were previously canceled without prejudice or disclaimer. Claims 2 and 24 are independent. Claims 2, 4-14, 16, and 24 are presently amended to better clarify the functioning of the control unit in line with the specification disclosure at page 7, lines 5-21, at page 5, lines 3-24, and the at page 6, lines 1-19, for example. The dependent claims have also been amended to be compatible with independent claim 1 amendments. Accordingly, no new matter has been introduced.

### **SUMMARY OF THE OFFICE ACTION**

The outstanding Action is a non-final Action that acknowledges the consideration of the references filed with the IDS on October 22, 2009.

In addition to the above-noted acknowledgement, the outstanding Action presents a rejection of claims 2, 4, 10-13, 17-20 and 24 under 35 U.S.C. 103(a) as allegedly being unpatentable over JP 2001-276484 (hereinafter '484 to be consistent with the outstanding Action) in view of Bartl et al. (U.S. Patent Application Publication No. 2003/0127398, hereinafter "Bartl") and a rejection of claims 5-9, 14-16, and 21-23 under 35 U.S.C. §103(a) as being unpatentable over '484 in view of Bartl in further view of Robey (JP 2000-343081, hereinafter '081 to be consistent with the outstanding Action).

### **35 U.S.C. §103(a) REJECTION OF CLAIMS 2, 4, 10-13, 17-20 AND 24**

Item 3 on page 2 of the outstanding Action presents the above-noted rejection of claims 2, 4, 10-13, 17-20 and 24 under 35 U.S.C. 103(a) as allegedly being unpatentable over '484 in view of Bartl. This rejection is traversed.

First, it is noted that '484 is concerned with a washing machine and sterilization dependent on the generation of silver ions that are introduced into washing machine water from

silver electrodes. On the other hand, Bartl is concerned with a drinking water sterilization device that uses platinum wire electrodes as noted in paragraph [0031] and appears to rely on the generated field (note paragraph [0036], for example) for the sterilization. Thus, the finding that paragraph [0016] of Bartl certainly teaches the use of polarity reversal and pauses in the water purification device with platinum (or graphite, note paragraph [0055]) electrodes is clear, but the reasoning as to why the artisan would have expected similar benefits to accrue when applying polarity reversals and pauses to the '484 silver ion generating washing machine has not been made clear.

In this regard, to whatever extent that Bartl's invention and the present invention are similar in that both aim to kill microorganisms in water, they are quite different in method. Bartl aims to purify **drinking water**, and teaches removing heavy metal ions (including copper and zinc ions) from in water targeted for treatment with a filter when the water is poured into a container ([0047]). To the water that has passed through the filter, an alternating-current voltage is applied by use of electrodes made of platinum or the like. Here, since no elution of metal ions from the electrode is presupposed, and with a view to minimizing anodic oxidants, a wire with a diameter of 0.1 mm to 0.5 mm ([0017]) is used as the electrode. To the electrode, a voltage of 50 V or less with a frequency of 1 to 5000 kHz, in particular 5 to 50 kHz, is applied (claim 1). Thus, an electric field is produced around the electrode ([0036]), and thereby bacteria, parasites, viruses, etc. are killed or rendered harmless ([0046]). Polarity reversal is accompanied by a voltage application halt period of one to five seconds, and the purpose is to prevent production of anode oxidants and to reduce energy consumption ([0016]).

By contrast, according to the present invention, the treated water is **not drinking water**. Accordingly silver ions, copper ions, zinc ions, etc. are **eluted into the water**, and the **antimicrobial effect of those metal ions is utilized**. Moreover, those metal ions are eluted into running water, so that during the voltage application halt period during which polarity reversal takes place, the metal ions eluted from the electrode that has previously been the anode can move sufficiently far away from the electrode. Thus, even when the electrode is reversed to the cathode, it does not attract the previously eluted metal ions. It is therefore possible to prevent the

electric power consumed for metal ion elution from being wasted, and to avoid a situation in which the desired total amount of metal ions is not obtained.

As discussed above, Bartl's invention and the present invention differ in terms of the purpose for the purified water as well as the means of achieving the aim of killing microorganisms. Therefore Bartl, even if it had been known to a person of ordinary skill in the art at the time of the present invention, would not have presented any hint of a valid reason that would have reasonably led such a person of ordinary skill to attempt to modify '484 based on Bartl in a manner to arrive at the claimed invention.

As recently noted by the Supreme Court, "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l v. Teleflex Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385, 1396 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir 2006)). There is no rational underpinning presented here.

Moreover, in the interest of advancing prosecution, Applicants have amended independent claims 2 and 24 to recite, *inter alia*, a requirement for:

...  
a control unit configured to control the drive circuit when the water feed valve is feeding water to the ion elution unit to firstly apply the voltage between the electrodes by applying a positive voltage potential to a first electrode during a first adjustable voltage application period to cause the first electrode to act as an anode relative to a second electrode acting as a cathode so that the first electrode will provide the metal ions during the first adjustable voltage activating period, to secondly apply no voltage difference between the first and second electrodes during an adjustable voltage application halt period, and thirdly to apply the positive voltage to the second electrode during a second adjustable voltage application period to cause the second electrode to act as the anode relative to the first electrode acting as the cathode so that the second electrode will provide the metal ions during the second voltage activating period, the control unit being further configured to adjust at least one of the length of the first adjustable voltage application period, the length of the adjustable voltage application halt period, the length of the second adjustable voltage application period, and the length an overall ion elution period that includes at least the first adjustable voltage application period, the adjustable voltage application halt period, and the second adjustable voltage application period to adjust the amount of eluted metal ions being produced to a desired level,  
...

It is clear that neither '484 nor Bartl actually teach or suggest such a control unit that will perform the adjustment of the various lengths of periods independent claims 2 and 24 specify. Thus, even if the artisan were to have attempted to notify '484 to operate with the Bartl polarity reversals and pauses of paragraph [0016], the result would not operate with the length of period adjustments required by these independent claims.

For at least the reasons stated above, independent claims 2 and 24 are clearly patentably distinct from '484 and Bartl and the withdrawal of the rejection of these independent claims as being unpatentable over '484 in view of Bartl is respectfully requested.

Furthermore, as claims 4, 10-13, and 17-20 depend directly or indirectly from independent claim 2, these dependent claims are respectfully submitted to be improperly rejected under 35 U.S.C. § 103(a) as unpatentable over '484 in view of Bartl for at least the same reason as noted above as to parent independent claim 2. Accordingly, the withdrawal of the improper rejection of dependent claims 4, 10-13, and 17-20 under 35 U.S.C. § 103(a) as unpatentable over '484 in view of Bartl is also respectfully requested.

In addition, it is noted that claims 4, 10-13, and 17-20 add further features to those of base independent claim 2, which further features are also not taught or suggested by the applied references considered alone or together in any proper combination. Accordingly, the withdrawal of the improper rejection of dependent claims 4, 10-13, and 17-20 under 35 U.S.C. § 103(a) as unpatentable over '484 in view of Bartl is further respectfully requested because of these added features.

### **35 U.S.C. §103(a) REJECTION OF CLAIMS 5-9, 14-16, AND 21-23**

Item 4 on page 3 of the outstanding Action presents the above-noted rejection of claims 5-9, 14-16, and 21-23 under 35 U.S.C. 103(a) as allegedly being unpatentable over '484 in view of Bartl in further view of '081. This rejection is traversed.

'081 is cited as to the subject matter added by dependent claims 5-9, 14-16, and 21-23 and does not cure the deficiencies noted above as to the reliance on '484 in view of Bartl. Accordingly, claims 5-9, 14-16, and 21-23 patentably define over the applied references for at

least the same reason that parent independent claim 2 does and withdrawal of this improper rejection of claims 5-9, 14-16, and 21-23 under 35 U.S.C. §103(a) as being allegedly unpatentable over '484 in view of Bartl in further view of '081 is respectfully requested.

In addition, limitations in dependent claims 5-9 and 14-16 that are functional limitations have been improperly ignored as "intended use." Such limitations must be considered. See MPEP § 2173 as follows:

A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).

A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. *In Innova/Pure Water Inc. v. Safari Water Filtration Sys. Inc.*, 381 F.3d 1111, 1117-20, 72 USPQ2d 1001, 1006-08 (Fed. Cir. 2004), the court noted that the claim term "operatively connected" is "a general descriptive claim term frequently used in patent drafting to reflect a functional relationship between claimed components," that is, the term "means the claimed components must be connected in a way to perform a designated function." "In the absence of modifiers, general descriptive terms are typically construed as having their full meaning." *Id.* at 1118, 72 USPQ2d at 1006. In the patent claim at issue, "subject to any clear and unmistakable disavowal of claim scope, the term 'operatively connected' takes the full breath of its ordinary meaning, i.e., 'said tube [is] operatively connected to said cap' when the tube and cap are arranged in a manner capable of performing the function of filtering." *Id.* at 1120, 72 USPQ2d at 1008.

Accordingly, the withdrawal of this improper rejection of claims 5-9, 14-16, and 21-23 under 35 U.S.C. §103(a) as being allegedly unpatentable over '484 in view of Bartl in further view of '081 is respectfully requested for this reason as well.

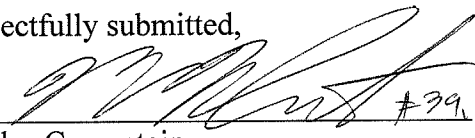
**CONCLUSION**

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Raymond F. Cardillo, Jr., Reg. No. 40,440 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By  #39,491  
for Charles Gorenstein  
Registration No.: 29,271  
BIRCH, STEWART, KOLASCH & BIRCH, LLP  
8110 Gatehouse Road  
Suite 100 East  
P.O. Box 747  
Falls Church, Virginia 22040-0747  
(703) 205-8000  
Attorney for Applicant